MILL CREEK 2 AND 3 HYDROELECTRIC SYSTEMS, MILL CREEK 3 INTAKE
Mill Creek
Yucaipa vicinity
San Bernardino County
California

HAER No. CA-2272-I

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of Interior
1111 Jackson Street
Oakland, California 94607

HISTORIC AMERICAN ENGINEERING RECORD

MILL CREEK 2 AND 3 HYDROELECTRIC SYSTEMS, MILL CREEK 3 INTAKE

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Location:	The Mill Creek 3 Intake (MC 3 Intake) is located along the north side of Mill Creek, within the San Bernardino National Forest, in a small unincorporated section in San Bernardino County, California. It is located on USGS topographic map Forest Falls (Section 13; T.1S., R.1W.).
Date of Construction:	1899-1903
Builder:	Redlands Electric Light and Power Company
Present Owner:	Southern California Edison Company (fee ownership and easements) 2244 Walnut Grove Avenue Rosemead, CA 91770
Use:	Mill Creek 3 Intake
Significance:	The MC 3 Intake is a contributing feature to the Mill Creek Hydroelectric System Historic District. The Mill Creek 2 and 3 (MC 2 and 3) Hydroelectric Systems are some of the earliest examples of a high-head hydroelectric system within the United States and one of the first commercial three-phase alternating current stations in California. Three-phase alternating later became the industry standard. The MC 3 Intake consists of a diversion dam, headgate, screens and a spillway. The diversion dam diverts water from a natural channel, the headgate regulates the flow of water and the screens prevent debris from entering the system.
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Date:	May, 2010

Part I: Description

Location and Overview of Mill Creek 3

The MC 3 facility is a high-head hydroelectric system located in a mountainous area east of the City of Redlands in San Bernardino County, California, just south of California State Route 38 (SR 38). MC 3 is owned and operated by Southern California Edison (SCE), and located in the San Bernardino National Forest, with a small western section situated on unincorporated San Bernardino County land. Work on MC 3 began in 1899 and completed in 1903. This hydroelectric system is situated in Mill Creek Canyon, with altitudes that range from 2,900 to 4,850 feet. MC 3's western boundary is about 2/3 of a mile to the east of the eastern boundary of the City of Redlands. Yucaipa is the nearest city, located several miles to the south of the MC 2 and 3 powerhouse. The MC 3 system is still operation and is accessible off of SR 38.

Mill Creek is the source of water that runs MC 3. The creek originates near Galena Peak in the eastern San Bernardino Mountains. The water then flows into the Santa Ana River at the Santa Ana Wash, located just north of Redlands and it then heads towards the San Bernardino Valley.[1] Its intake is located in the middle of the Mountain Home Village, a residential community that was established in the 1920s. Water from Monkeyface Falls, which originates from Monkeyface Creek, was also taken from this intake until the 1970s. MC 3 has its own intake, flowline, sandbox and forebay to collect and process the water, it shares the same powerhouse as MC 2. Both systems power an electrical system that originally served the City of Redlands, but later also provided bulk electricity for the cities of Colton and Riverside.

Description of Mill Creek 3 Intake

The MC 3 Intake is located on the north side of the creek and consists of four primary components: the diversion dam, headgates, screens and spillway. The water for the MC 3 system is diverted from Mill Creek through a concrete diversion dam, located approximately 5,000 feet above sea level. The dam consists of a diagonally placed concrete wall that deflects the water flow towards the tunnel headgates at the north bank of the creek. The headgate wall has an ogee section that creates a spillway. Water is admitted at the north end of the spillway through a screen and into the concrete headgate box. A leaf rack is used to keep debris out of the dammed area and there was once a fish wheel located directly east of the trash rack, but it has since been removed. The circular scars from its use, however, remain in the adjacent concrete wall. Today, a stilling well with a USGS water gauge is located near where the former fish wheel once was. The intake pond also has a drain gate, to drain the feature for maintenance purposes. At the head of the first tunnel of the conduit there is a waste gate and a headgate that admits water through another screen. All the headworks gates are made of timber that slide into vertical grooves and are operated by hand winches. From the headgate, the water enters a tunnel, which leads to a three by four foot flume that runs 125 feet long. Along the tunnel is a concrete rectangular pit which is covered over with wood framing. It is likely that the pit may have been created for domestic water access because it is located near the ruins of the flume keeper's cottage.

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[1] Philip de Barros and Carmen Weber, "Cultural Resources Inventory and Evaluation of the Mill Creek Hydroelectric Project FERC Project No 1934," March 1993, 2-1.

Just north of the intake features is a small concrete block office building where the log book for the MC 3 Intake is kept. This building was constructed circa 2001, and replaced an original wood frame building with horizontal wood board cladding and a gabled roof.

In addition to the water from Mill Creek, the MC 3 system also receives additional water through the MC 3 Intake from the Redlands Water Company pump #4 and other similar pumps, which feed into the Mill Creek line. The acquisition of these additional pumps was the result of an agreement made between the Redlands Water Company and SCE in the 1960s. In this agreement, SCE agreed to run the water company pumps and provide electricity to operate the company's machinery.[2]

Part II: Historical Context

Please see the Historic Context section in the general Historic American Engineering Record for the Mill Creek 2 and 3 Hydroelectric Systems (HAER No. CA-2272).

Part III: Sources of Information

"Big Deal Completed: Merger of Subsidiary Organizations of the Edison Electric Company Finally Consummated and Bonds Delivered," *Los Angeles Times*. November 8, 1902. 12.

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Fowler, Frederick Hall. *Hydroelectric Power Systems of California and Their Extensions into Oregon and Nevada, Water-Supply Paper 493*. Washington, D. C.: Government Printing Office, 1923.

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"Property Data – Southern California Edison Company: Mill Creek No. 2 & No. 3 Power House."

"Redlands: Electric Light and Power Company is Reaching Out," *Los Angeles Times.* January 30, 1896.

"Redlands Electric Light & Power Co., Edition Electric Co. of Los Angeles, Mill Creek Powerhouses." *National Register of Historic Places Inventory – Nomination Form*, April 30, 1985.

"Redlands: New Power Plant," *Los Angeles Times.* May 25, 1902, 10.

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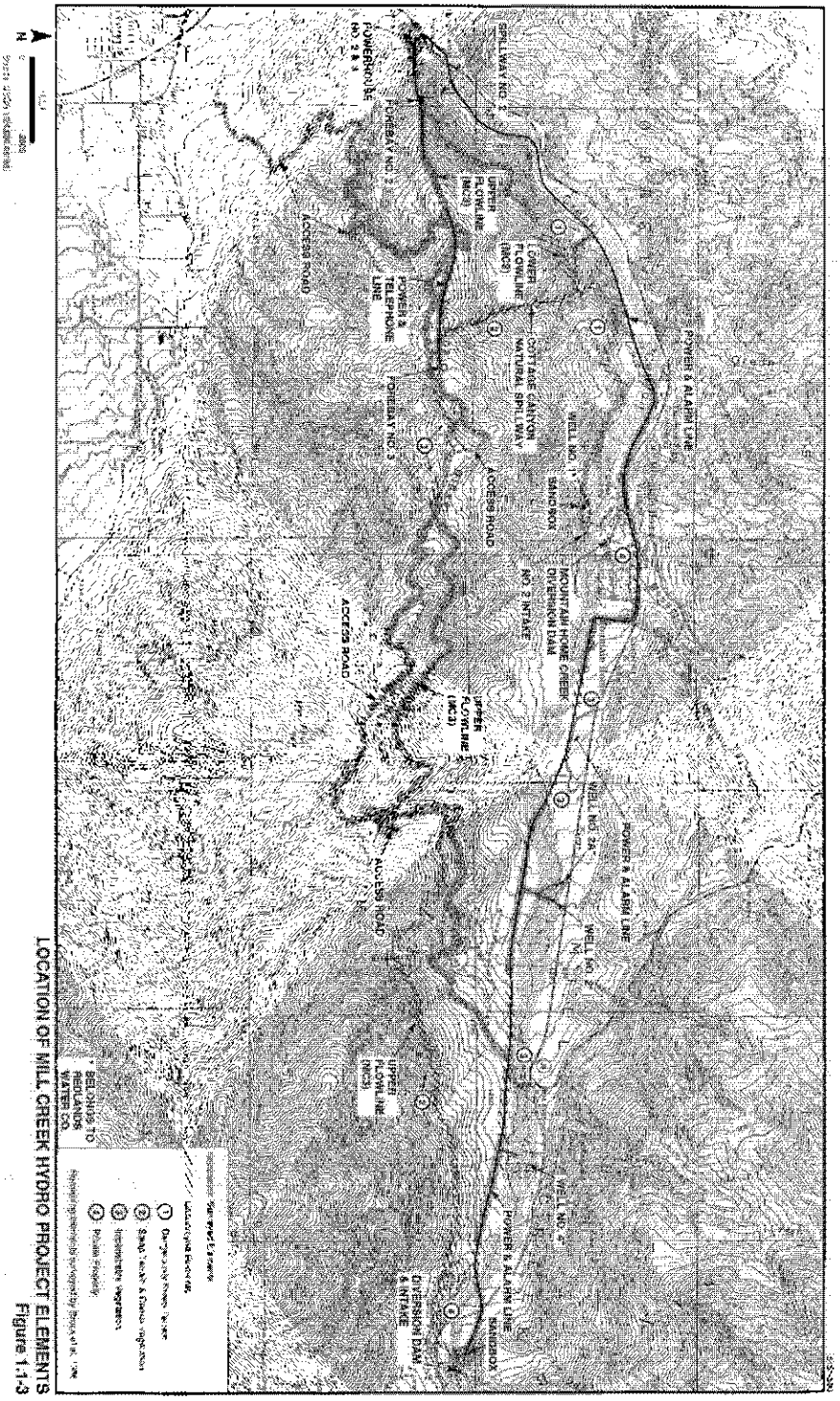
Taylor, Thomas T. "Photographs, and Written Historical and Descriptive Data: Bishop Creek Hydroelectric System, Bishop Creek, Bishop Vicinity, Inyo County, California, HAER No. CA-145," February 7, 1994.

White, David R. M. "Cultural Resource Management Plan for the Southern California Edison Company Mill Creek Hydroelectric Project (FERC Project No. 1934) San Bernardino County, California," June 1993.

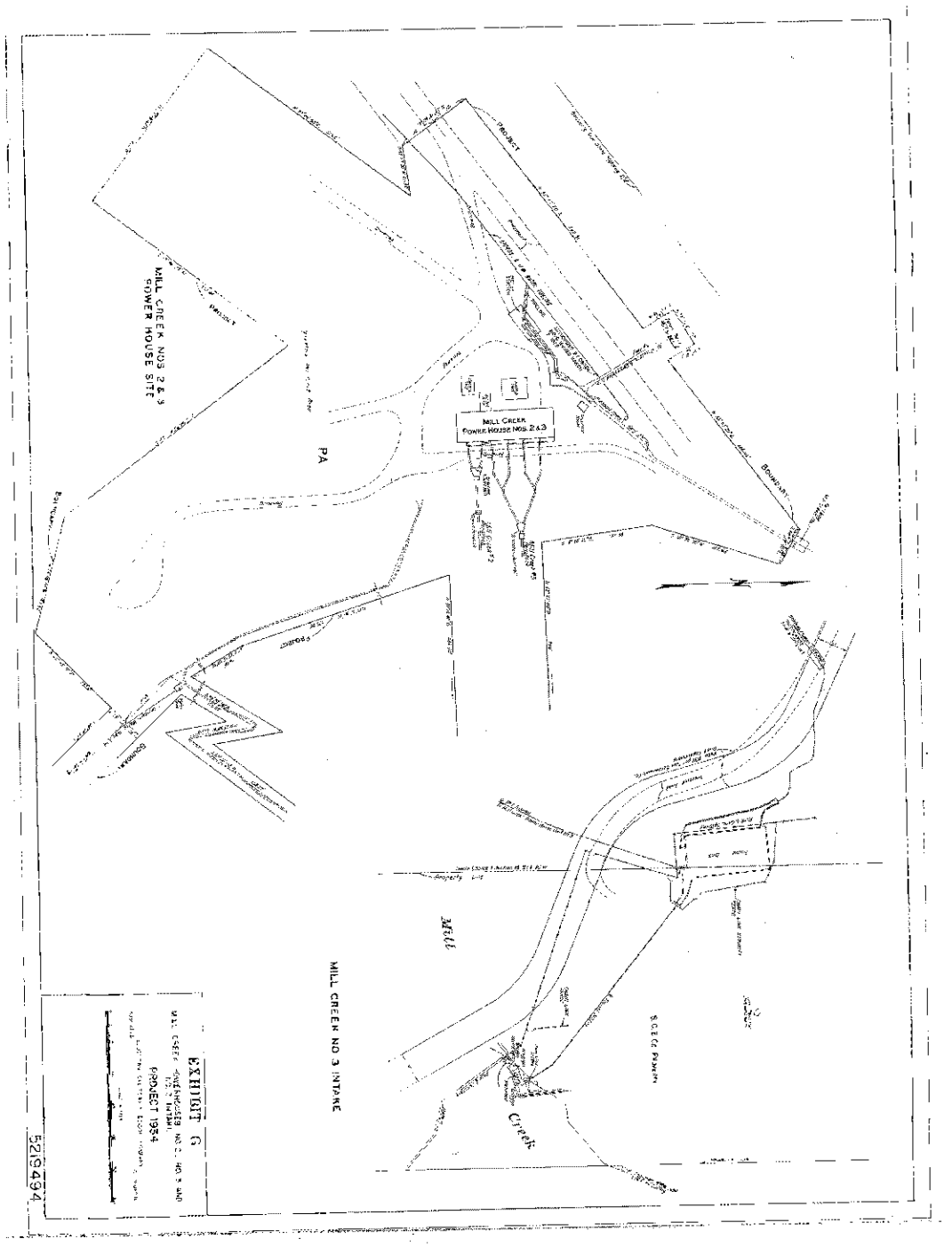
"Work on New Electric Plant," *Los Angeles Times*. March 27, 1899, 9.

Part IV: Project Information

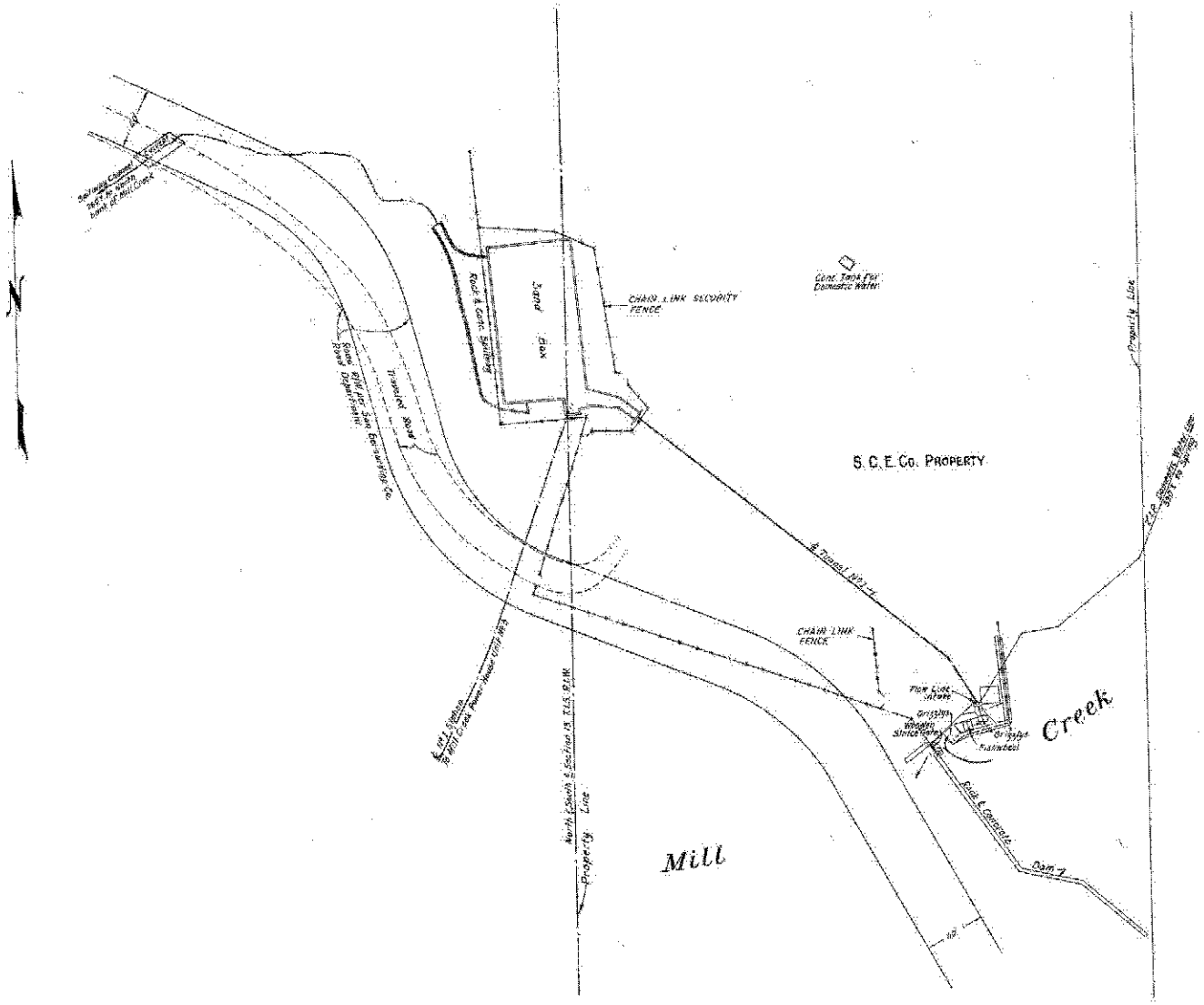
MC 2 has not operated since 1992 when it was damaged during floods. It was not, however, decommissioned. The Southern California Edison Company, in conjunction with the San Bernardino National Forest, the agency that owns the property, proposes to formally decommission the facility. This process will include filling the sandbox and forebay with slurry, and removing the metal features. Although MC 3 is still in operation, it is also being recorded as part of this project because of the system's close association with MC 2.



Location of Mill Creek Hydro Project Elements. (Map Courtesy of Southern California Edison)

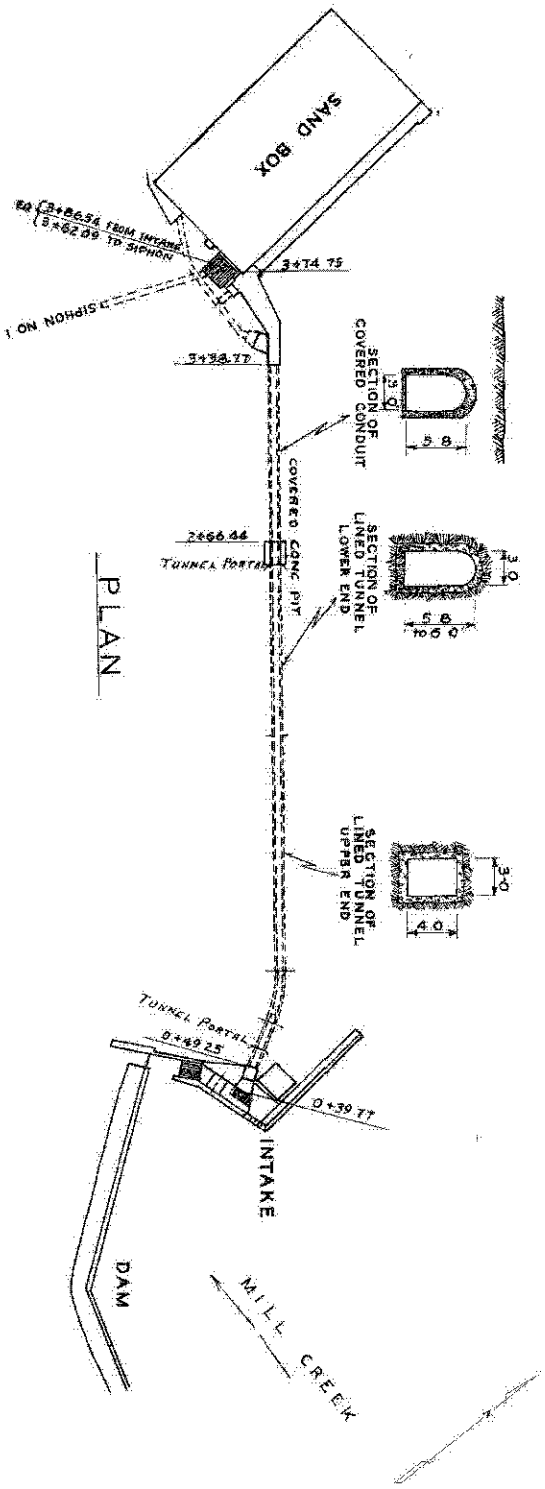


Mill Creek No. 3 Intake and the Powerhouse Site for Mill Creek 2 and 3. (Plan courtesy of Southern California Edison).

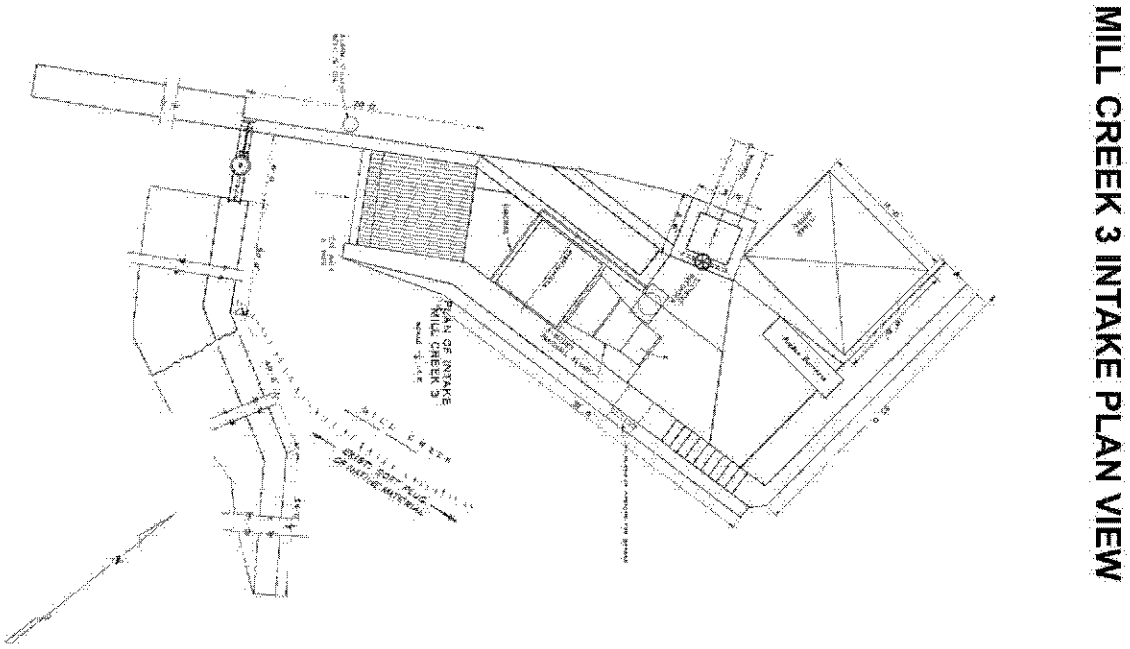


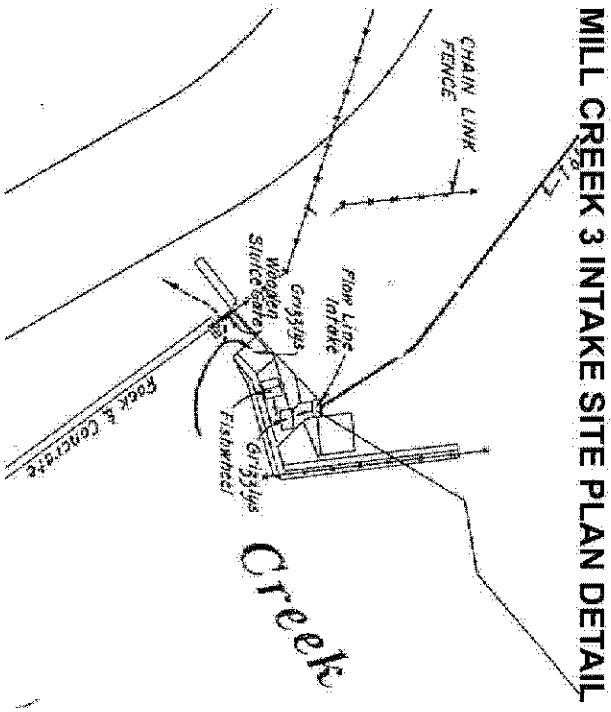
MILL CREEK NO. 3 INTAKE

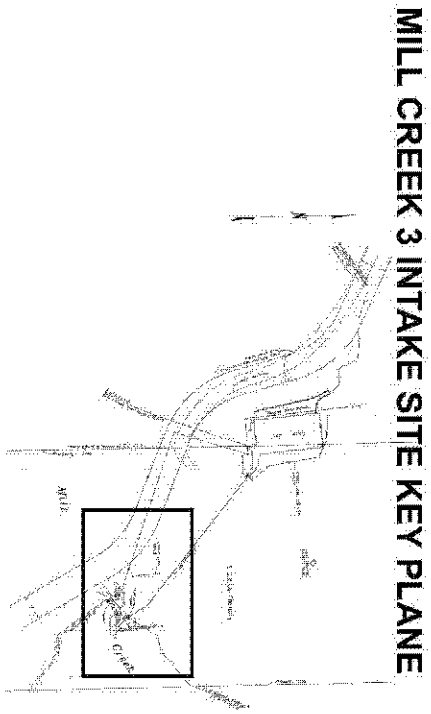
Mill Creek No. 3 Intake Detail taken from the Mill Creek No. 3 Intake and Powerhouse Site Plan. (Drawings courtesy of Southern California Edison).



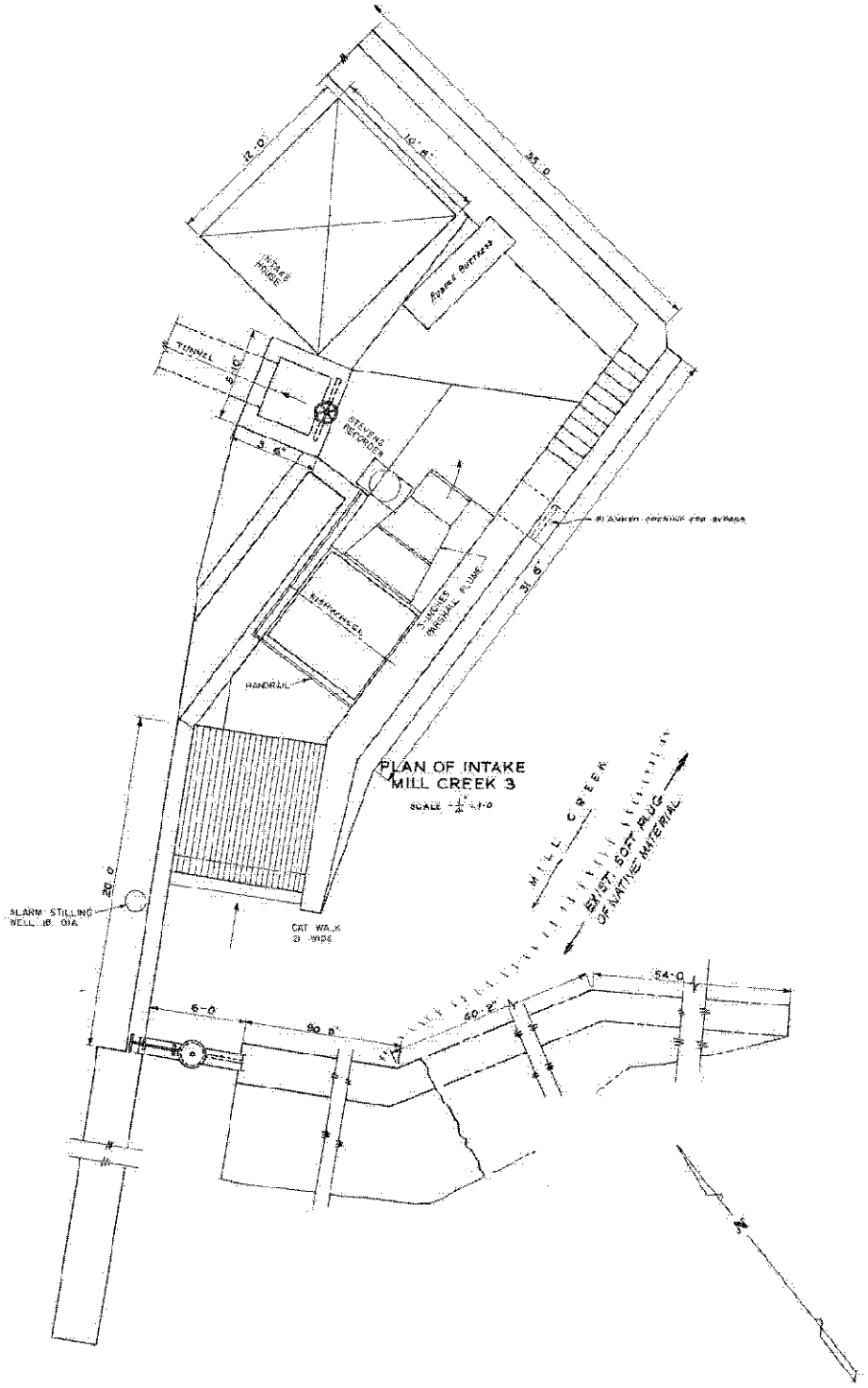
Mill Creek 3 Intake and Sandbox Plan. (Plan Courtesy of Southern California Edison).







Mill Creek 3 Site Plan and Drawing Details (Plan and Drawing Details Courtesy of Southern California Edison).



Detail of Mill Creek 3 Intake. (Drawing Courtesy of Southern California Edison).